

**NPDES
INSPECTION REPORT
October 7, 2010**

**CLARKIA WATER AND SEWER DISTRICT
WASTEWATER TREATMENT PLANT
NPDES PERMIT ID-002507-1**

SHOSHONE COUNTY, IDAHO

**Prepared by:
John Tindall, P.E.
Idaho Department of Environmental Quality
Coeur d'Alene, Idaho**

I. Facility Information

Facility Name: Clarkia Water and Sewer District Wastewater Treatment Plant

Facility Type: Municipal Wastewater Treatment Plant (WWTP)

Facility Location: Off Poplar St. in Clarkia, at intersection of National Forest Roads #301 and #321
Latitude: 47°0'18.95"N
Longitude: 116°15'15.53"W

Discharge Location: St. Maries River
Latitude: 47°0'15.36"N
Longitude: 116°15'28.05"W

Facility Contacts: Robert "Wheat" Kruger, Operator and Manager
Dawn Kruger, Administrative Assistant

Facility Contact Info: P.O. Box 1096 (mailing address)
211 Landing Road
Clarkia, ID 83812
(208) 245-4046

Permit Number: ID-002507-1

Permit Status: Permit became effective November 24, 2003 and expired on November 24, 2008. Status of permit reissuance is not known.

II. Inspection Information

Inspection Date/Time: October 7, 2010, 9:00 AM to 1:30 PM

Inspectors: John Tindall and Steve Tanner (Idaho Dept. of Environmental Quality - IDEQ)

Weather: Wet with rain part of the time and mild temperature (about 55°F)

Purpose: Determination of compliance with the NPDES Permit and Clean Water Act.

III. Inspection Entry

This was an announced inspection. Wheat Kruger, Clarkia W&S District Operator/Manager, was contacted several days prior to the October 7th inspection.

We arrived at the WWTP at about 9 AM and met with Wheat at the Clarkia Highway District Shop located in Clarkia where Wheat works.

The purpose of the inspection was discussed with Wheat. I was not denied access to the WWTP.

Wheat accompanied us throughout the inspection.

IV. Inspection Chronology

The inspection began with an entry interview, followed by a tour of the WWTP and a file review with Dawn Kruger in the Clarkia Post Office. The WWTP tour included an inspection of the treatment system, the flow measuring device, the locations samples are taken to determine compliance with the NPDES permit limits and the discharge into the St. Maries River.

As part of the file review, the WWTP's Quality Assurance Plan (QAP), discharge monitoring reports (DMRs) and the supporting documentation for the data input into the DMRs were reviewed. A checklist developed by EPA, Region 10 was used to gather information in key areas related to determining compliance with the NPDES permit. The August 1986 Operation and Maintenance (O&M) Manual was also noted as being available.

The inspection concluded with an exit interview where areas of concern observed during the inspection were discussed.

V. Owner and Operator Information

The Clarkia W&S District owns and operates the wastewater collection, treatment and disposal system. The wastewater system serves the community of Clarkia and currently there are about 60 connections when the trailer courts are seasonally full.

Both Wheat and Dawn are licensed as Wastewater Treatment 1 and Wastewater Collection 1. The Idaho wastewater system classification for Clarkia is as follows:

- Treatment 1
- Collection 1

The responsible charge operator and back-up operators have the appropriate certifications.

VI. Background

The permit authorizes the Clarkia W&S District to discharge through Outfall 001 into the St. Maries River.

The current centralized wastewater collection and treatment system was constructed in 1985. The WWTP design average day flow is 0.018 million gallon per day (mgd), sized to handle about 80 homes.

The Clarkia W&S District also owns and operates 3, duplex lift stations, the individual septic tanks at each connection and the septic tank effluent wastewater collection system serving the District users.

VII. Wastewater Management Process

Wastewater is first treated through the individual septic tanks at each connection. The collection system consists of a combination of gravity and pressure effluent collection lines. Three (3) duplex lift stations pump septic tank effluent to the two (2) sand filter beds. Upstream of Lift Station #3 (which pressure doses the filters) is are three (3) Orenco screens used to filter out large debris that has gotten through the septic tanks. Previously, the filter beds had plugging problems from debris plugging the distribution pipes. Each filter is about 10,000 square feet and at design flows of 0.018 mgd, the loading rates would be about 1.8 gallons per day per square foot. One filter is run for a few months letting the other filter rest. The filter underdrain piping collects the treated effluent and it gravity flows to a Sanuril tablet erosion chlorinator. Flow is measured through a rectangular weir plate at the discharge end of the chlorinator. Following the addition of chlorine, the effluent flows into a 2,500 gallon buried chlorine contact basin. Effluent samples for all parameters are collected out of the discharge end of the contact basin. The effluent then discharges into the St. Maries River.

Wheat has not had any plugging problems with the filters for some time and the distribution piping on top of the filters can be flushed if necessary. Wheat inspects the individual septic tanks periodically and controls the frequency of tank pumping. Solids from inadequately maintained septic tanks can lead to filter plugging problems. Septage is disposed of by licensed hauler at an approved location.

Wheat monitors flows into the lift stations and attempts to control infiltration/inflow problems in the collection system.

We looked inside the Lift Station #3 wet well. There was considerable corrosion of the metal components in the wet well. The metal wet well appears to have some rust and coating failure. The District may need to do some rehabilitation of this lift station in the future.

There does not appear to be a good way to calibrate or compare the flow rate measurements on the weir plate with a volumetric/time check because it would be difficult to place a suitably sized container under the discharge stream. Flow is required to be monitored once per week with a visual check of the gauge reading. The accuracy of the weir plate appears to be adequate for the information required.

Soda ash is being added to control pH. DMRs and lab data show that the minimum pH is typically 6.6 to 6.7 and the permit limit is 6.5. The cause of the low pH may be acid-forming bacteria in the sand filter that are thriving in areas of the filter that are anoxic or anaerobic.

At the discharge point into the St. Maries River, there was no visible sign of the discharge. The discharge pipe on the upstream side of the bridge is submerged and not visible from the river bank.

VIII Facility Sample Collection and Analyses

Sample collection is conducted by the operator.

A Quality Assurance Project Plan (QAPP) dated has been prepared by Dawn for the District. The QAPP was briefly reviewed during the inspection. The QAPP needs to be updated to cover all the NPDES permit items listed in Section I.D.3 of the permit.

Grab samples for compliance monitoring are taken at the discharge end of the chlorine contact chamber through a 36-inch access tube using a sampling rod. This location and sample collection method appears to be adequate for collecting representative grab samples.

All samples, except for pH and chlorine residual, are analyzed by Anatek Labs in Moscow, ID. Chain of custody forms are completed for all samples that are delivered to the contract lab.

DMRs are signed by Dawn Kruger, Secretary/Treasurer and back-up operator.

River samples have continued to be collected. The Permit required river samples to be taken for four (4) years from 2004 which the District did. It does not appear that the Permit requires any more river samples to be taken.

IX. 2008 EPA Notice of Violation

The deficiencies noted in the April 22, 2008 Notice of Violation letter from EPA to the District regarding the reporting of loading rates appear to have been corrected.

The violations noted in the letter covered the need for an Operations and Maintenance (O&M) Manual and Quality Assurance Plan (QAP). Both of these documents were available for review.

IX. Areas of Concern

This inspection included a review of the treatment system, the sample collection and analyses procedures and documentation required by the NPDES Permit. During the course of the inspection, the following area of concern was noted:

- A. Quality Assurance Requirements, Part I.D. of the Permit** – This part of the permit requires that the permittee develop a Quality Assurance Plan (QAP). As previously stated, a QAP has been prepared. There are some minor modifications are needed to include all the applicable items listed in Section I.D.3 of the permit should be in the document.
- B. Monitoring Procedures and Proper Operation and Maintenance, Parts II.B. and III.E. of the Permit** – Part II.B. of the permit specifies that monitoring must be conducted according to test procedures approved under 40CFR Part 136. Part III.E. of the permit specifies that the permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of the permit. Total chlorine residual testing is done using a hand-held digital colorimeter and the periodic calibration of

this instrument was not being done and recorded. If the meter is not being properly calibrated in accordance with EPA approved methods, the results may not be representative of the discharge as required in Part II.A. of the permit. Documentation of the calibration is an important part of the self-monitoring program.

- C. **Monitoring Procedures and Proper Operation and Maintenance, Part II.C. of the Permit** – Part II.C. of the permit specifies that monitoring must be conducted according to test approved under 40 CFR 136. The E.coli test method used by the District's contract lab (Anatek Labs) is SM9221F. The maximum holding time for this method is 6 hours.

In a discussion with Erin Linskey of Anatek Labs in Moscow, ID regarding the holding time for E.coli samples, Mr. Linskey acknowledged that the 6 hour maximum holding time between sample collection and sample set-up is not being met. He indicated that this has come up before and he was going to try changing to a method (Quanti-Tray) that he can run at the Moscow lab (instead of sending the samples to Spokane as is currently done). This will hopefully allow the District and lab to meet the holding time requirements for this test method.

The District should follow-up with Anatek Labs to assure that the proper holding times are met.

- D. **Monitoring Procedures and Proper Operation and Maintenance, Part II.E of the Permit** – Part II.E. of the permit specifies that the records of monitoring must include the time a sample was taken and the name (or initials) of the person taking the sample. This information was not included on the District's data sheet for chlorine, pH, flow and temperature.

- X. **Inspection Sampling** - Samples were not collected by IDEQ during this inspection.

Report Completion Date: December 3, 2010

Lead Inspector Signature: John Tindall